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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,397	10/15/2003	Michael P. Caren	10021298-1	8617

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AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER
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FORMAN, BETTY J

ART UNIT	PAPER NUMBER
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1634

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/687,397	Applicant(s) CAREN ET AL.	
	Examiner BJ Forman	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 16-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **FINAL ACTION**

### ***Status of the Claims***

1. This action is in response to papers filed 16 November 2006 in which claims 1, 7, 9-10 and 19 were amended. All of the amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 17 August 2006 are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed but are deemed moot in view of the amendments, withdrawn rejections and new grounds for rejection. New grounds for rejection, necessitated by the amendments, are discussed.

Claims 1-15 are under prosecution.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Patent No. 5,922,617, issued 13 July 1999) in view of Hauer et al (WO 99/60170, published 25 November 1999).

Regarding Claim 1, Wang et al disclose an apparatus comprising a rotatable support for one or more linear array (e.g. radial array #60, Fig. 3A), the support having retaining element (e.g. grooves) for the linear array of particles (Column 8, lines 45-54), each array comprising an array of features for conducting chemical reactions (Abstract), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and an examining device for examining the results of the reactions (e.g. scanner,

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Column 15, lines 10-52 and Fig. 3-7). Wang et al do not specifically teach the linear array of beads comprises an enclosed channel of capillary dimensions. However, linear arrays having enclosed channels were well known in the art at the time the claimed invention was made as taught by Hauer et al (Fig. 1-7). Hauer et al teach a similar support having a linear arrangement of beads wherein the beads are within an enclosed channel/capillary. Hauer et al teaches that the enclosed channel simplifies array assembly and permits assays using "extremely small quantities and volumes of target reagents" (page 8, lines 3-15). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the enclosed channels of Hauer et al to the arrays of Wang et al. One of ordinary skill in the art would have been motivated to do so for the expected benefit of simplified assembly and for the particular advantage of assaying targets present in limited quantities and volumes as taught by Hauer et al (page 8, lines 3-15).

Regarding Claim 2, Wang et al disclose the apparatus wherein the support comprises a circular tray (i.e. disc, #120, Fig. 7).

Regarding Claim 3, Hauer et al further teach the linear arrays are provided with a heater whereby desired hybridization temperature is maintained (page 19, lines 6-15). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the heater of Hauer et al to the hybridization device of Wang et al. One of ordinary skill in the art would have been motivated to do so for the obvious benefit of maintaining a desired temperature for hybridization as is known in the art Hauer et al (page 19, lines 6-15)

Regarding Claim 4, Wang et al disclose the apparatus wherein the examining device comprises an imaging system (e.g. light detection module #130, Column 15, lines 45-52).

Regarding Claim 5, Wang et al teach an examining device for examining the results of the reactions (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7) but they are silent regarding

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a CCD detector. However, Hauer et al teach the similar device wherein the detector is a CCD (page 21, lines 12-17).

Regarding Claim 6, Wang et al is silent regarding a fluid dispensing device, but Hauer et al teaches the similar apparatus comprising a fluid dispenser whereby the proper amount of reagent is dispensed into the capillary (page 18, lines 9-21).

Regarding Claim 7, Wang et al disclose the apparatus wherein the rotatable support comprises retaining elements (grooves/pits) each of which receives an array unit (particle) in a seated position ("held firmly in position") in which it extends in the radial position during rotation about the axis (Column 13, line 55-Column 14, line 12).

Regarding Claim 8, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al teach the apparatus wherein the each array is positioned whereby the detector is oriented to detect and focus on each line pattern/sub array (Column 10, line 50-Column 11, line 10 and Column 15, line 59-Column 16, line 5). Wang et al further illustrate the examination device comprising a linear arrangement of components (Fig. 7). The claims are given the broadest reasonable interpretation consistent with the broad claim language and specification wherein a linear examining device is not defined so as to exclude the linear arrangement illustrated by Wang et al.

The courts have stated that claims must be given their broadest reasonable interpretation consistent with the specification *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997); *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ

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541, 550-551 (CCPA 1969); and *In re Zletz*, 893 F.2d 319, 321-22, 13USPQ2d 1320, 1322 (Fed. Cir. 1989) (see MPEP 2111).

Regarding Claim 10, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having retaining element (e.g. grooves) for the linear array of particles (Column 8, lines 45-54), each array comprising an array of features for conducting chemical reactions (Abstract), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and an examining device for examining the results of the reactions (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al do not specifically teach the linear array of beads comprises an enclosed channel of capillary dimensions. However, linear arrays having enclosed channels were well known in the art at the time the claimed invention was made as taught by Hauer et al (Fig. 1-7). Hauer et al teach a similar support having a linear arrangement of beads wherein the beads are within an enclosed channel/capillary. Hauer et al teaches that the enclosed channel simplifies array assembly and permits assays using "extremely small quantities and volumes of target reagents" (page 8, lines 3-15). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the enclosed channels of Hauer et al to the arrays of Wang et al. One of ordinary skill in the art would have been motivated to do so for the expected benefit of simplified assembly and for the particular advantage of assaying targets present in limited quantities and volumes as taught by Hauer et al (page 8, lines 3-15).

Regarding Claim 11, Wang et al disclose the apparatus wherein the examining device comprises an imaging system (e.g. light detection module #130, Column 15, lines 45-52).

Regarding Claim 12, Hauer et al further teach the linear arrays are provided with a heater whereby desired hybridization temperature is maintained (page 19, lines 6-15). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the heater of Hauer et al to the hybridization device of Wang et al. One of ordinary skill in the art would have been motivated to do so for the obvious benefit of

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maintaining a desired temperature for hybridization as is known in the art Hauer et al (page 19, lines 6-15)

Regarding Claim 13, Wang et al teach an examining device for examining the results of the reactions (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7) but they are silent regarding a CCD detector. However, Hauer et al teach the similar device wherein the detector is a CCD (page 21, lines 12-17).

Regarding Claim 14, Wang et al is silent regarding a fluid dispensing device, but Hauer et al teaches the similar apparatus comprising a fluid dispenser whereby the proper amount of reagent is dispensed into the capillary (page 18, lines 9-21).

Regarding Claim 15, Wang et al disclose an apparatus comprising a circular tray (i.e. disc, #120, Fig. 7) having a surface supporting one or more linear arrays (e.g. radial array #60, Fig. 3A), each array comprising a plurality of biopolymers for hybridization (Column 2, line 60-Column 3, line 10 and Column 9, lines 43-65), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and scanning device for examining the results of the hybridizations (e.g. scanner, Column 15, lines 10-52 and Fig. 3-7). Wang et al teach the apparatus further comprising detector (Column 15, line 59-Column 16, line 5). Wang et al do not specifically teach the detector comprises a bubble detector.

The preceding rejection is based on judicial precedent following *In re Fitzgerald*, 205 USPQ 594 because Wang et al is silent with regard to bubble detection. However, the bubble detection recited in Claim 15 is deemed to be inherent in the detector of Wang et al because the detector focuses on and detects excitation from the surface of the disc and uses filters (e.g. blocking filters) to selectively filter excitation wavelengths to minimize noise (Column 15, lines 53-59). Wang et al further teach the apparatus comprises a differential focus error detection to eliminate "pattern noise" (Column 11, lines 40-46). Hence, the detector detects excitation from various components on the disc (i.e. fluorescent label, background and pattern noise) and

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would detect the presence of bubbles as either background signal or pattern noise because the bubbles would excite light at a wavelength different from a fluorescently labeled bead.

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the detector of Wang et al to detect the excitation wavelengths indicative of the presence of bubbles. One of ordinary skill in the art would have been motivated to do so based on the suggestion of Wang to eliminate noise and background signals.

Furthermore, the claimed bubble detector is reasonably interpreted as an intended use of the claimed examination device. Hence, the claimed bubble detector is either encompassed by or an obvious variation of the apparatus of Wang et al.

The burden is on applicant to show that the claimed bubble detector is either different or non-obvious over that of Wang et al.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Patent No. 5,922,617, issued 13 July 1999) in view of Hauer et al (WO 99/60170, published 25 November 1999) as applied to Claim 1 above and further in view of Remacle et al (U.S. Patent Application Publication No. 2002/0177144, filed 27 December 2001).

Regarding Claim 9, Wang et al disclose an apparatus comprising a rotatable support for one or more linear array (e.g. radial array #60, Fig. 3A), the support having retaining element (e.g. grooves) for the linear array of particles (Column 8, lines 45-54), each array comprising an array of features for conducting chemical reactions (Abstract), a rotation device for rotating the support (central orifice #64 spindle and motor #122, Column 1, lines 63-66 and Column 14, lines 25-26), and an examining device for examining the results of the reactions



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(e.g. scanner, Column 15, lines 10-52 and Fig. 3-7) and Hauer et al teach the capillary array as discussed above.

Wang et al further teach the apparatus comprises a processor that controls the motor and synchronization of the data collection (Column 13, lines 3-10) but they are silent regarding control of rotation speed. However, Remacle et al teach the similar apparatus wherein rotation is controlled by a processor (§ 24) to centrifugal force to move fluids and to rotate the disc for focused photo-detection (§ 94 & 98). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the processor of Wang et al to provide required speed for the centripetal force for fluid movement and rotation for focused detection. One of ordinary skill in the art would have been motivated to do so for the expected benefit of providing the controlling rotation speed for desired application as taught by Remacle et al (§ 94 & 98).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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### Conclusion

6. No claim is allowed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

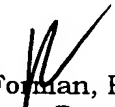
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

  
BJ Forman, Ph.D.  
Primary Examiner  
Art Unit: 1634  
January 19, 2007